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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/315,599	05/20/1999	RITU SHRIVASTAVA	ALSC-00300	6720

28960 7590 07/20/2004  
HAVERSTOCK & OWENS LLP  
162 NORTH WOLFE ROAD  
SUNNYVALE, CA 94086

EXAMINER
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HA, NATHAN W

ART UNIT	PAPER NUMBER
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2814

DATE MAILED: 07/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/315,599

Applicant(s)

SHRIVASTAVA, RITU

Examiner

Nathan W. Ha

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 May 2004.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,4-6,9,10 and 21-28 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1,4-6,9,10 and 21-28 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                    | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 4-6, 9-10, and 21-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoo et al. (US. 5,605,853, previously cited), in view of Mehta (US. 5,679,559, previously cited.).

In regard to claims 1, 5, 9, 18, 23 and 26, in fig. 7, Yoo et al. discloses a semiconductor comprising:

a common substrate 10;

an SRAM device 50 implemented on the common substrate and isolated by LOCOS isolation technique 12; and

a flash EPROM device 70 implemented on the common substrate 10 and isolated by LOCOS isolation technique 12.

Yoo et al., however, does not expressly disclose a second isolation technique such as STI to isolate the devices. Mehta, in fig. 18, teaches a first and second isolation techniques 200 and 230b filled with first and second materials 242 and 240 to separate the devices on the same substrate in order to scale the minimum spacing between regions, please see col. 6, last paragraph and the first depth is larger than second

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depth. Furthermore, the trench isolation is needed in densely packed regions where the active spacing is small, such as a memory array in a DRAM, SRAM, or EPROM; see also, col. 4, lines 50-56.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use STI isolation technique as taught by Mehta in Yoo et al. substrate in order to scale the minimum spacing between regions.

In regard to claims 4, 6, and 10, Yoo et al. discloses SRAM coupled EPROM for transmitting signals, see fig. 7.

Regarding the processing limitations recited in (claims 1, 5, and 9) (implemented non-concurrently, etc.), this would not carry patentable weight in this claim drawn to structure. In re Thorpe, 227 USPQ 964 (Fed. Cir. 1985).

In regard to claims 21-22, Yoo discloses the LOCOS field oxides are made of oxide; see col. 3, lines 60-61, and Mehta also teaches LOCOS and STI are made of oxide, see col. 5, lines 45-46 and col. 6, lines 61-62, for example.

In regard to claims 24 and 27, Mehta or Yoo shows the first structure and second structure are contiguous, see Mehta's fig. 18.

In regard to claims 25 and 28, Mehta or Yoo further discloses the structures comprise oxide metal, see Yoo's fig. 7.

### ***Response to Arguments***

In response to applicant's argument that there is no suggestion or motivation to combine the above references, the fact that applicant has recognized another

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advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). In this case, Mehta indeed discusses the advantage of using a modified STI trench (deep trench) over the LOCOS where low MOS spacing is necessary, for example, the area of the substrate. STI type trench provides minimum horizontal space, but deeper than LOCOS.

Applicant further contends that Mehta does not teach STI trench. It should be noted that STI is a board term that is used to describe a deep trench in a semiconductor substrate. It is recognizable to one of ordinary skilled in the art regardless of how it is made. A deep trench may be considered as an STI trench. Mehta provides a way to modifies the process of making STI trench, for example, avoiding masking. However, Mehta realizes that an STI trench is capable of providing its function as isolation.

### **Conclusion**

**3. THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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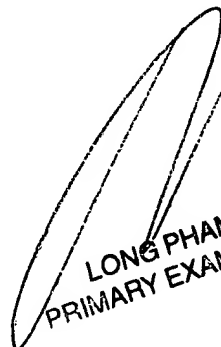
extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan W. Ha whose telephone number is (571) 272-1707. The examiner can normally be reached on M-TH 8:00-7:00(EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Nathan Ha  
July 13, 2004



LONG PHAM  
PRIMARY EXAMINER